

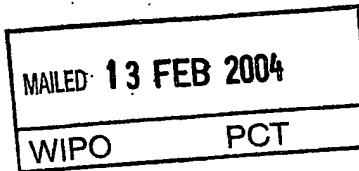


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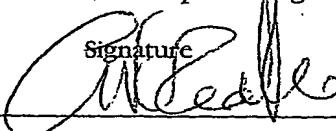
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VALVE ASSEMBLY FOR ALCOHOL BEVERAGE DISPENSING APPARATUS

Field of the Invention

The present invention relates to a valve assembly adapted for filling a bag with an alcohol beverage where the bag is contained in a container.

Background of the Invention

It is known to contain alcohol, such as wine, in bags contained in a cardboard type container. Further, it is known to use a bag inserted into a keg for storing beer in the bag. In the case of a beer keg, pressure is applied to the bag to dispense the beer from the bag and out of the keg. Further, the bag is inserted into the keg container prior to the beer being filled into the bag.

The filling of beer into the bag, has two potential problems. One problem is that the bag still may contain air that mixes with the beer and spoils the beer. Another problem is that the filling of the beer directly into the bag has been known to rupture the bag.

Summary of the Invention

It is an object of the present invention to provide a valve assembly for use with an alcohol beverage or beer dispensing apparatus that reduces the risk of the bag retaining air when filled with beer.

It is another object of the present invention to provide a single valve assembly that fits through a single opening for the container of an alcohol or beer dispensing apparatus.

It is another object of the present invention to provide a valve assembly for an alcohol beverage or beer dispensing apparatus that is adapted to fill the bag with alcohol, is adapted to supply a pressure in the container against the bag for dispensing the alcohol from the bag, and reduces the chances of the bag rupture during filling of the bag.

The present invention relates to a valve assembly adapted for use in filling a bag with an alcohol beverage where the bag is contained in a container having an aperture. The valve assembly has a valve body adapted to be secured in the aperture that has a first passageway extending through the center of the valve body. The valve body has at least one second passageway extending through the valve body radially spaced from the first passageway. The assembly has a first valve centrally seated in the valve body in releasable sealing engagement with the first passageway for controlling the flow of one of charging gas and beverage through the first passageway into and out of the bag. The assembly has a second valve seated in the valve body concentrically of the first valve in releasable sealing engagement with the at least one second passageway for controlling the flow of one of charging gas and beverage through the at least one second passageway into and out of the bag.

By providing two valves that permit for filling and removing of charging gas and beverage from the bag, the bag may be inflated with the charging gas prior to filling with the alcohol beverage. Also, the charging gas is removed from the bag as the bag is filled with alcohol beverage. The use of the charging gas reduces the risk of bag rupture when the beverage is filled into the bag. The concentric arrangement of the second valve relative to the center valve permits for simple independent operation of the valves.

It should be understood that by charging gas it is meant any inert gas that does not react with the alcohol beverage to spoil the beverage. When the alcohol beverage is filled into the inflated bag, the inert charging gas, and any air mixed therewith, is forced out the valve not used to fill the bag with the beverage. The charging gas is preferably carbon dioxide or nitrogen when the beverage is beer. Preferably, the first valve is used to fill and dispense the alcohol beverage from the bag. Preferably, the second valve is used to inflate the bag with charging gas and permit the charging gas to exit the bag as the bag is filled through the first valve with the alcohol beverage.

It is envisaged that the valve body has at least one third passageway spaced radially out from the first passageway and the assembly has a third valve seated in the valve body concentrically of the first valve for controlling the flow of gas through the at least one third passageway into and out of the container exterior of the bag. The third valve permits air to be removed from the keg container as the bag is inflated and permits for pressurized air to be forced into the container and act against the bag to facilitate beverage dispensing. This embodiment has three valves utilized in one valve body.

Preferably, the second and third valves are ring valves that are concentrically spaced to provide valve actuators for opening and closing the valve that are radially spaced from each other and axially moveable independent of each other.

In accordance with an aspect of the present invention there is provided a valve assembly adapted for filling a bag with an alcohol beverage where the bag is contained in a container having an aperture. The valve assembly comprises a valve body adapted to be secured in the aperture. The valve body has a first passageway extending through the center of the valve body and at least one second passageway extending through the valve body radially spaced from the first passageway. The valve assembly has a first valve centrally seated in the valve body in releasable sealing engagement with the first passageway for controlling the flow of one of charging gas and beverage through the first passageway into and out of the bag. The valve assembly has a second valve seated in the valve body concentrically of the first valve in releasable sealing engagement with the at least one second passageway for controlling the flow of one of charging gas and beverage through the at least one second passageway into and out of the bag.

Brief Description of The Drawings

For a better understanding of the nature and objects of the present invention reference may be had to the accompanying diagrammatic drawings in which:

Figure 1 is a front elevation view of a home beer dispensing apparatus in accordance with the present invention;

Figure 2 is a side elevation view of the home beer dispensing apparatus;

Figure 3 is an exploded view of the vale and spear assembly with the keg of the present invention;

Figure 4 is a sectional side view of the valve and spear assembly as shown in Figure 3;

Figure 5 is a sectional side view of an alternative valve and spear assembly.

Detailed Description Of The Invention

Referring to Figures 1 and 2 there is shown a home beer dispensing apparatus, appliance or unit 10. The dispensing apparatus 10 is primarily intended for use in domestic kitchens but may also be used in utility rooms, garages, domestic bars, caravans etc. While the preferred embodiment relates to dispensing beer, alternatively carbonated solutions or other alcohol beverages may be dispensed by apparatus 10.

The home beer dispensing apparatus 10 has a front wall 12 and a dispensing tap 14 protruding forward of the front wall 12. A drip tray 16 also protrudes forward of the front wall 12 and is adapted to support an open glass container 18 below the dispensing tap 14. The home beer dispensing apparatus 10 further has a base 21 adapted to rest on a counter top. The front wall 12 is an extension of two pivoting side walls 20 which may be moved between closed and open positions to allow the keg 22 (see Figure 2 in broken lines) to be inserted into the housing of the home beer dispensing apparatus 10.

The housing of the home beer dispensing apparatus 10 further includes a top wall 24 and a rear wall 26. The rear wall 26 has a grill 30 that permits for air circulation within the home beer dispensing apparatus 10. An electrical cord 32 extends through the rear wall 26 of the apparatus 10 to provide a connection into a main electrical supply to

supply electrical power to the electrical components housed within the unit 10. Alternatively, a 12 Volt DC supply input may be used.

The dispensing apparatus 10 has a cooling system 34 located behind and below keg 22 that is adapted to cool beer in keg 22 when keg 22 is placed into dispensing apparatus 10

Referring now to Figures 3 and 4, the valve assembly 40 and spear 102 are shown.

The valve assembly 40 is adapted to fit into a raised collar aperture 42 of keg 22. The valve assembly 40 has an annular shaped body 46 that is secured in the aperture 42 through a bung 41 and locking member 43.

The valve body 46 has an annular flange 49 (see Figure 3) that is adapted for mating with a tap dispensing adapter (not shown) connected to tap 14 (see Figures 1 and 2) for dispensing the beverage from keg 22.

The valve body 46 has a first centrally disposed passageway 48. The first centrally disposed passageway 48 contains a first valve 54 in the form of a ball that is movable within the passageway 48. The ball valve 54 is held in normally sealing engagement by spring 55. The first passageway 48 is connected and forms part of the hollow spear 102. The spear has a central passageway 103 along which beverage or charging gas may be moved to a remote end 105 positioned adjacent the bottom of keg 22.

The valve body 46 has a second passageway 50 that is shown readily spaced outwardly of the first passageway 48. It should be understood from Figure 4, two passageways 50 are shown diametrically opposed to each other on opposing radial sides of the central aperture 48. As shown in Figure 3, this comprises two passageways 50. It should be understood that only one passageway is required so long as the

passageway is radially spaced from the first passageway 48. The second passageway 50 is closed by a second valve 56 which comprises a circular or annular flat ring shaped valve. The valve 56 is held in sealing engagement within the valve body 46 by means of spring 57. Spring 57 is seated against the head 107 of spear 102 and is adapted to force the flat valve or second valve 56 into sealing engagement across its aperture 50. The flat seal 56 provides for an actuator surface 59 that is radially spaced from the center valve 54 and is axially moveable parallel to axis 101 independent of the axial movement of the ball valve 54.

The valve body 46 further includes at least one third passageway 52. The passageway 52 is shown to be readily spaced and disposed relative to the central passageway 103. The radial passageway 52 is closed by a third ring valve 58. The third ring valve 58 is held in its closed position by a spring 63 that acts against an intermediate wall between the second passageway 50 and the third passageway 52 to maintain the valve 58 in a sealing closed position. The valve 58 has a ring shaped actuator surface 61 that is spaced concentrically and radially of the first and second valves 54 and 56 so as to be independently moveable relative to these valves parallel to axis 101.

The first valve or ball valve 54 is moveable to control the flow of a charging gas or the beer beverage into and out of the bag 44. The second valve 56 also controls the flow of either the charging gas or beverage into or out of the bag 44. In the preferred embodiment, the charging gas is controlled by the second valve 56 and the flow of beverage is controlled by the first valve 54.

The third valve 58 is seated in the third passageway 52 and is open to permit air as shown by arrows 63 to be forced into the keg 22 exterior

to the bag 44.

The valve body 46 in effect acts as the bag neck for bag 44 and comprises two parts 46a and 46b that are snap fitted together to securely locate flap valves 56 and 58 therebetween. To support the bag 44, neck or valve body part 46b has an out turned annular flange 70 having a diameter that is greater than the diameter of the second passageway 50. The bag 44 is welded to the out turned annular flange 70 whereby the bag 44, valve assembly 40, and spear 102 become a disposable assembly.

Referring to Figure 5, there is shown an embodiment similar to Figure 4 in that the valve assembly 40 comprises a first valve 54 and a second valve 56. However, the difference is that the third valve is now valve 110 which is located in a top wall of the keg 22.

Referring to Figure 4, during assembly and filling of the keg 22 with beer, the spear 102 and valve assembly 40 together with bag 44 are inserted through the keg aperture 42 of the keg 22. The valve assembly 40 is mounted in place by the bung 41 and interlocking fingers 43. Next, the bag 44 is preferably filled with carbon dioxide gas through opening of valve 56. This inflates the bag 44 within the keg 22. At the same time, the air valve 58 is opened to permit air to escape from the keg 22 as the bag 44 inflates to fill the space within the keg 22.

After the bag 44 has been filled with carbon dioxide gas, any air trapped within the bag should be mixed with the carbon dioxide gas. The next step is to insert beer into the inflated bag 44 along spear 102. This is accomplished by connecting a hose to the first valve 54 so as to open the valve 54 and then insert beer in through valve 54 and spear 102 into the bag 44. The hose also effectively opens valve 56 and allow gas to escape out through valve 56 as the beer fills the contents or the volume of the

bag 44.

During beer dispensing, an adapter tap (not shown) is secured to the valve assembly 40 in a manner that will interconnect the spear 102 with the tap 14 whereby when the tap 14 (Figure 1) is actuated, beer is dispensed from the bag 44 along spear 102 up through valve 54 to tap 14. At the same time, a supply of pressurized air is provided through air valve 58. If the embodiment of Figure 5 is used, then the air is provided through valve 110 in a top wall of keg 22. The pressurized air is forced against the outer surface of bag 44 to push or force beer out along spear 102 through valve 54 and out tap 14.

WHAT IS CLAIMED IS:

1. A valve assembly adapted for filling a bag with an alcohol beverage where the bag is contained in a container having an aperture, the valve assembly comprising:

a valve body adapted to be secured in the aperture, the valve body having a first passageway extending through the center of the valve body and at least one second passageway extending through the valve body radially spaced from the first passageway;

a first valve centrally seated in the valve body in releasable sealing engagement with the first passageway for controlling the flow of one of charging gas and beverage through the first passageway into and out of the bag; and,

a second valve seated in the valve body concentrically of the first valve in releasable sealing engagement with the at least one second passageway for controlling the flow of one of charging gas and beverage through the at least one second passageway into and out of the bag.

2. The valve assembly of claim 1 wherein the valve body has at least one third passageway spaced radially out from the first passageway and a third valve seated in the valve body concentrically of the first valve for controlling the flow of gas through the at least one third passageway into and out of the container exterior of the bag.

3. The valve assembly of claim 2 wherein the third valve is spaced radially and concentrically out from the second valve.

4. The valve assembly of claim 1 wherein each valve has a valve actuator for opening and closing the valve, and the valve actuators being radially spaced from each other and axially moveable independent of each other.

5. The valve assembly of claim 2 wherein each valve has a valve actuator for opening and closing the valve, and the valve actuators being radially spaced from each other and axially moveable independent of each other.

6. The valve assembly of claim 1 wherein the valve body has an annular shape.

7. The valve assembly of claim 6 wherein the valve body has an annular ring adapted to extend above the container for mating with a dispensing adapter.

8. The valve assembly of claim 1 wherein the valve body has an out-turned annular flange supporting the bag and the out-turned flange having a diameter greater than that of the second passageway.

9. The valve assembly of claim 2 wherein the third passageway through valve body has an inner wall having a out-turned annular flange supporting the bag.

10. The valve assembly of claim 4 wherein the second valve is ring valve.

11. The valve assembly of claim 5 wherein the first and second valves each comprise a ring valve.

12. An alcohol beverage dispensing apparatus comprising:

a keg having an aperture;

a bag contained in the keg for containing an alcohol beverage; and,
a valve assembly comprising:

a valve body adapted to be secured in the aperture, the valve body having a first passageway extending through the center of the valve body and at least one second passageway extending through the valve body radially spaced from the first passageway;

a first valve centrally seated in the valve body in releasable sealing engagement with the first passageway for controlling the flow of one of charging gas and beverage through the first passageway into and out of the bag; and,

a second valve seated in the valve body concentrically of the first valve in releasable sealing engagement with the at least one second passageway for controlling the flow of one of charging gas and beverage through the at least one second passageway into and out of the bag.

13. The dispensing apparatus of claim 12 wherein the valve body has at least one third passageway spaced radially out from the first passageway and a third valve seated in the valve body concentrically of the first valve for controlling the flow of gas through the at least one third passageway into and out of the container exterior of the bag.

14. The dispensing apparatus of claim 13 wherein the third valve is spaced radially and concentrically out from the second valve.

15. The dispensing apparatus of claim 14 wherein the second and third passageways are annular.

16. The dispensing apparatus of claim 12 wherein each valve has a valve actuator for opening and closing the valve, and the valve actuators being radially spaced from each other and axially moveable independent of each other.

17. The dispensing apparatus of claim 13 wherein each valve has a valve actuator for opening and closing the valve, and the valve actuators being radially spaced from each other and axially moveable independent of each other.

18. The dispensing apparatus of claim 17 wherein the valve body has an annular ring adapted to extend above the container for

mating with a dispensing adapter.

19. The dispensing apparatus of claim 12 wherein the valve body has an out-turned annular flange supporting the bag and the out-turned flange having a diameter greater than that of the second passageway.

20. The dispensing apparatus of claim 13 wherein the third passageway through valve body has an inner wall having a out-turned annular flange supporting the bag..

21. The dispensing apparatus of claim 16 wherein the second valve is ring valve.

22. The dispensing apparatus of claim 17 wherein the first and second valves each comprise a ring valve.

23. The dispensing apparatus of claim 12 wherein the keg has an air passageway and has an air valve seated in releasable sealing engagement with the air passageway for controlling the flow of air through the air passageway into and out of the keg exterior to the bag.

VALVE ASSEMBLY FOR ALCOHOL BEVERAGE
DISPENSING APPARATUS

ABSTRACT

A valve assembly is disclosed for use in filling a bag with an alcohol beverage where the bag is contained in a keg having an aperture. The valve assembly has a valve body adapted to be secured in the aperture that has a first passageway extending through the center of the valve body. The valve body has at least one second passageway extending through the valve body radially spaced from the first passageway. The assembly has a first valve centrally seated in the valve body in releasable sealing engagement with the first passageway for controlling the flow of beverage therethrough into and out of the bag. The assembly has a second valve seated in the valve body concentrically of the first valve in releasable sealing engagement with the second passageway for controlling the flow of charging gas therethrough into and out of the bag. The two valves permit for initial inflation of the bag with charging gas and subsequent filling of the bag with alcohol beverage. The use of the charging gas reduces the risk of bag rupture. The concentric arrangement of the second valve relative to the center valve permits for simple independent operation of the valves.

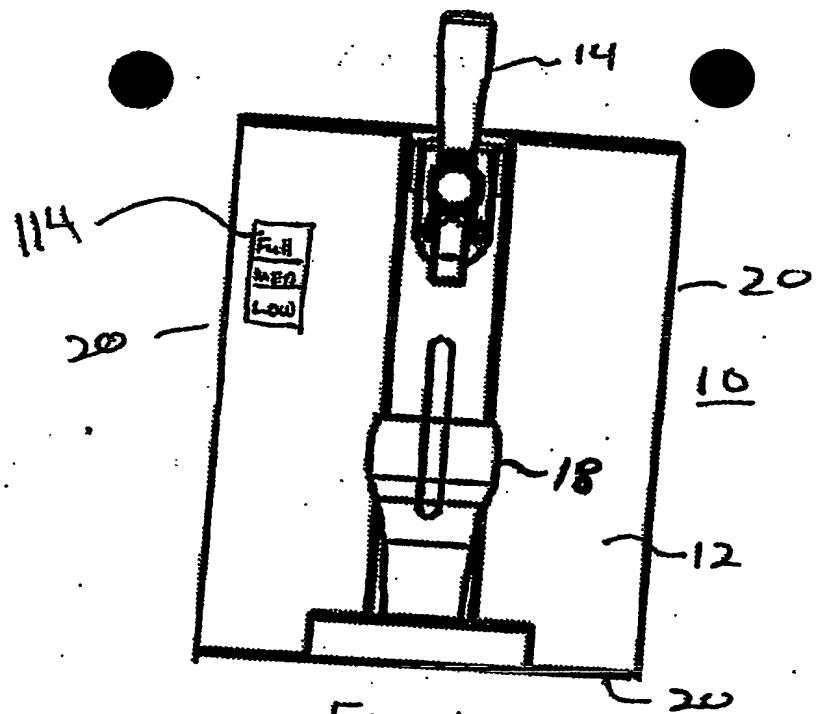


FIG. 1

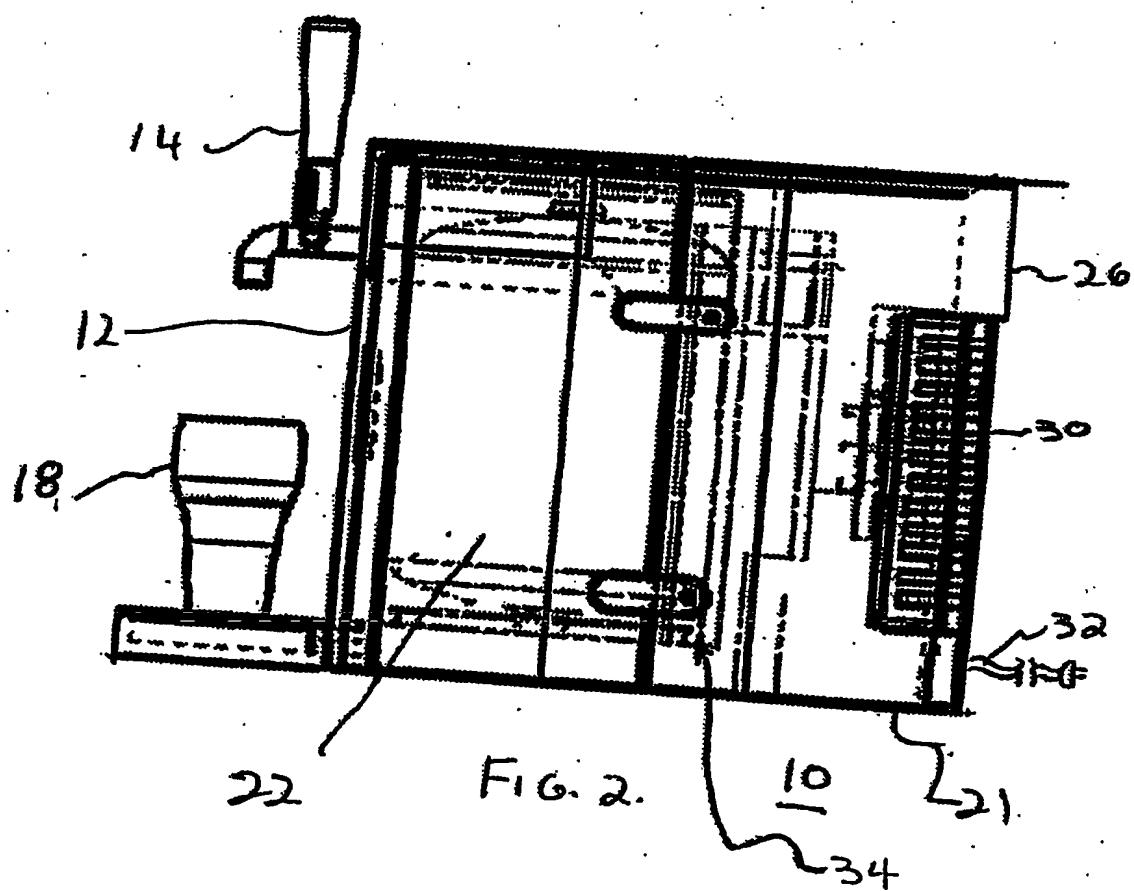
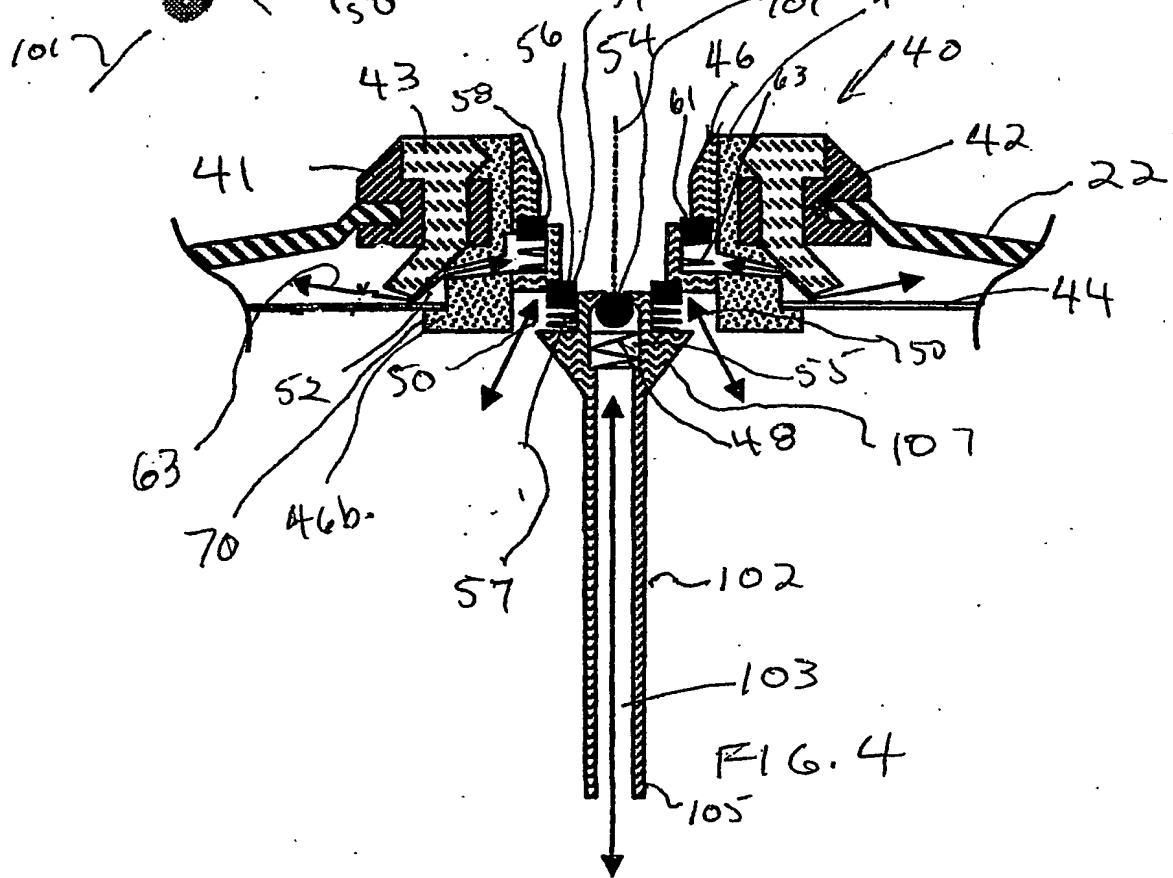
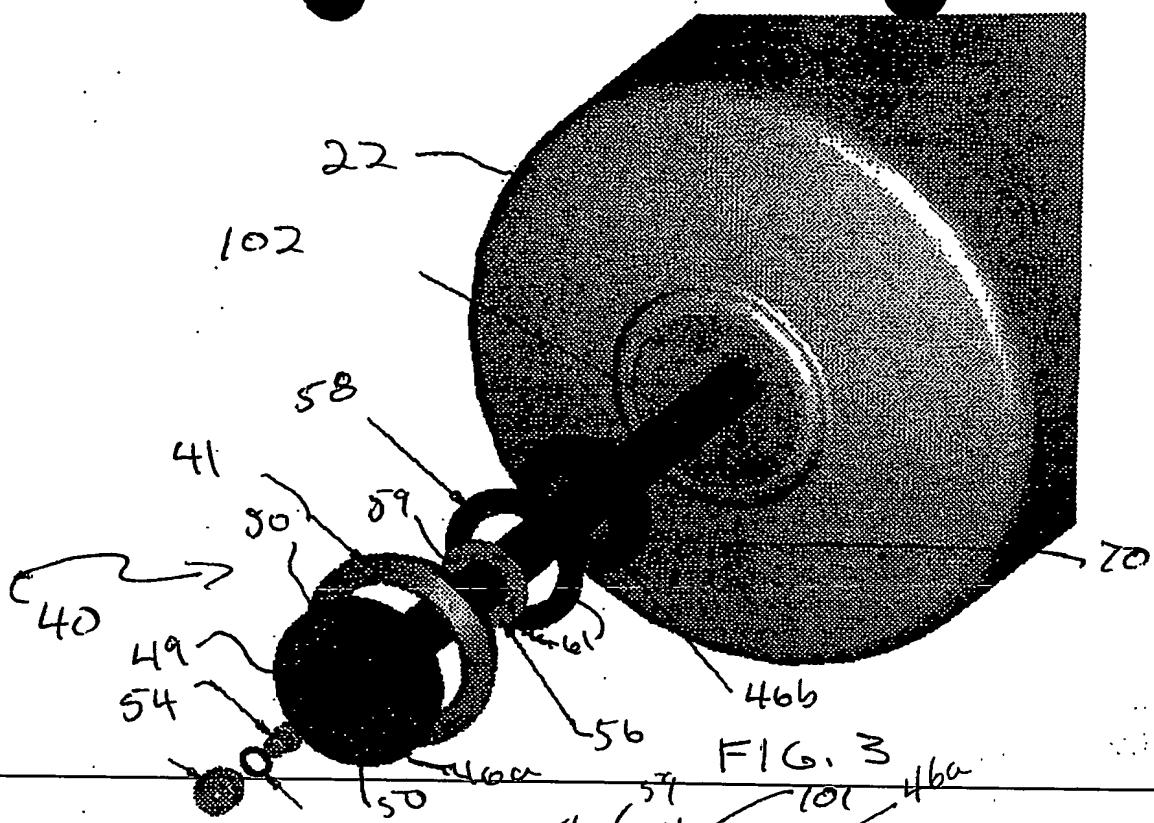


FIG. 2.



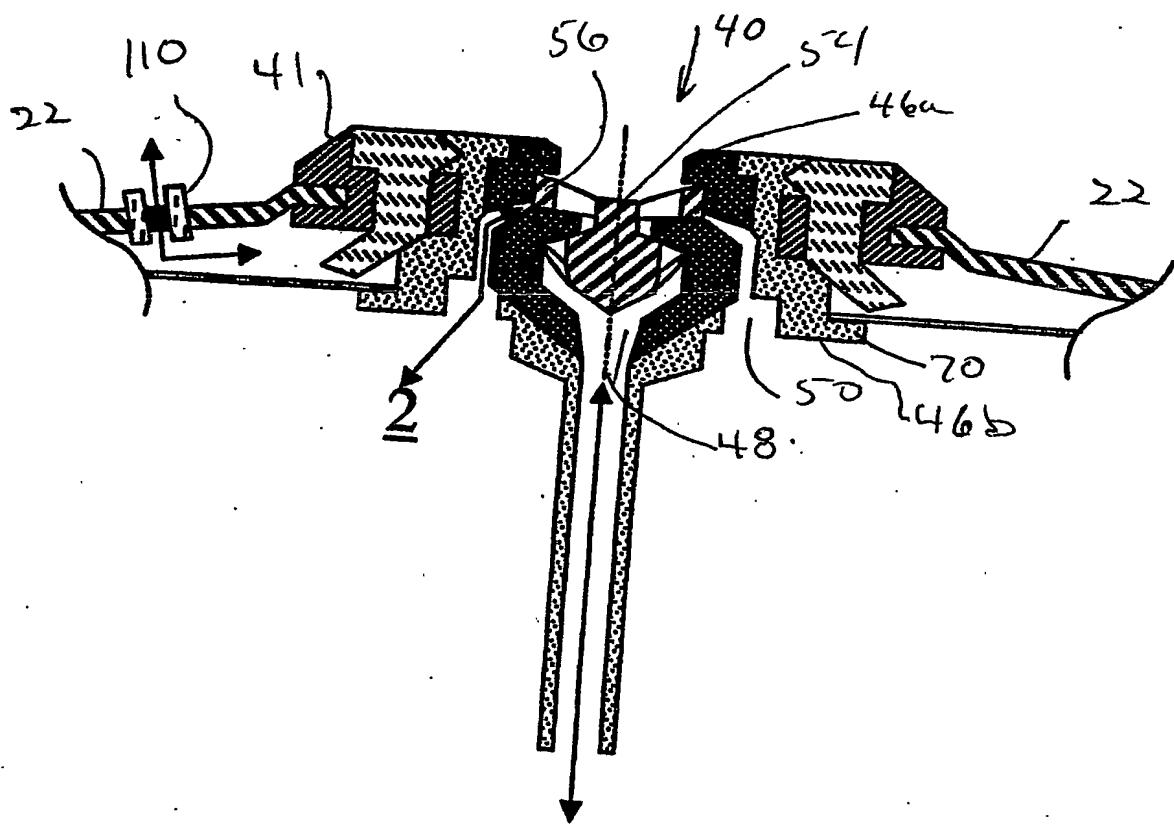


FIG. 5.

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